

### **REMARKS**

The Office Action of April 9, 2010 provides the examination of claims 8, 9, 11, 13-15, 17 and 18, claims 1-7 being withdrawn following restriction. Claims 10, 12, and 16 have been canceled.

Claim 17 has been amended. Support for the amendment can be found in paragraphs [0032] and [0033] of the specification.

Claim 19 is newly added. Support for new claim 19 is provided by the specification at least at paragraph [0033] taken with paragraph [0030] and Example 4 - paragraph [0059].

No new matter is added to the application by any amendment and no new issue for consideration by the Examiner is raised by any amendment.

#### **Substance of Interview**

A brief discussion was held with the Examiner on July 8, 2010 to assess whether new claim 19 could be submitted without raising any new issue for consideration by the Examiner and so the amendment would be entered. The Examiner agreed that no new issue was raised and that the new claim 19 would be entered.

#### **Rejections Under 35 USC § 112, 1<sup>st</sup> Paragraph**

Claims 8, 9, 11, 13-15, 17 and 18 are rejected under 35 USC § 112, first paragraph, for alleged lack of enablement by the specification. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

The Examiner asserts that the claims encompass administration of a number of different proteins together with administration of mesenchymal stem cells, by many different routes, and that undue experimentation is required to practice the invention so broadly. The Examiner's position is in essence that the art is very unpredictable, and therefore the claims must be limited to a scope actually reduced to practice. Applicants disagree.

First, the scope of the claims with respect to the growth factors to be administered is commensurate with the showing of efficacy in inducing mesenchymal stem cell migration. That is, the "numerous different proteins" are in fact proteins that have been demonstrated, *e.g.* by

Example 1 in the specification, to indeed induce migration of mesenchymal stem cells. (*See*, paragraph [0047].)

Furthermore, at least with respect to claims 13-15, the specification shows that administration of the growth factor component into a tissue is able to cause localization of intravenously injected mesenchymal stem cells in the tissue that is the site of injection. (*See*, Example 4.) Thus, the showing of Example 4 is commensurate with at least claims 13 and 15, which recite that the stem cell factor is administered to the site where accumulation of the mesenchymal stem cells is desired. Furthermore, those claims that recite "topical" administration routes or application of the growth factor to the injured tissue are not subject to the Examiner's concern that, "Whether the protein can reach target cells in vivo or not depends on the administration route of said protein."

New claim 19 is also directed to the embodiment shown in Example 4, in which the growth factor is administered as a complex with atelocollagen (*i.e.* as a "transplant" – *see*, paragraph [0030]), thus restricting diffusion of the growth factor from the site of its injection. Accordingly, at least new claim 19 should be found enabled.

As to the remaining broader claims, the Examiner must also consider the full disclosure of the specification and the presence of the working examples there. In particular, the specification discloses in the Example 4 an assay that can be used to determine if mesenchymal stem cells are indeed effectively localized to a desired site by administration of the stem cell growth factor component. The Examiner should note that administration of the stem cells into the tail vein in the animal model represents the most dispersive mode of administration among those contemplated in the specification (*see*, paragraph [0032] for example). The successful focusing of the mesenchymal cells dispersed in the circulation after injection into the tail vein into the calf muscle tissue by injection of the growth factors into that site well demonstrates that the embodiment of the invention least likely to work is in fact operable.

Applicants thus submit that the showing of Example 4 demonstrates that the present invention is operable throughout the scope of the presently claimed embodiments. Applicants further submit that the assay explained in Example 4 shows one of ordinary skill in the art how to test any particular embodiment of the invention for efficacy. Accordingly, any testing that must

be conducted to confirm operability of an embodiment is guided by the disclosure in the specification, and so is **NOT** undue experimentation.

For all of the reasons set forth above, Applicants submit that the full scope of claims 9, 11, 13-15, 17 and 18, and new claim 19, is enabled by the specification. Accordingly, the instant rejection should be withdrawn.


Applicant believes the pending application is in condition for allowance. Such favorable action is respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Susan W. Gorman, Ph.D., Reg. No. 47,604, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: July 9, 2010

Respectfully submitted,

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